

REMARKS

This communication is a full and timely response to the aforementioned non-final Office Action dated April 27, 2006. By this communication claims 9, 24, and 39 have been amended to address formal matters. Reconsideration and allowance of pending claims 1-7, 9-22, 24-27 and 39-45 are respectfully requested.

In numbered paragraph 4 on page 3 of the Office Action, claims 9, 24, and 39 are objected to because of alleged informalities. Applicant appreciates the Examiner's diligence in reviewing the claims, and have amended claims 9, 24, and 39 to address the Examiner's concerns. Applicant requests that the objection to claims 9, 24, and 39 be withdrawn.

In numbered paragraph 5 on page 4 of the Office Action claims 1-7, 9, 10, 16-22, 24, 25, 31-37, 39, and 40 are rejected under 35 U.S.C. §103(a) as unpatentable over *Lo et al* (U.S. Patent No. 5,062,056) in view of *Hanna* (U.S. Patent No. 5,488,675). Applicant respectfully traverses this objection.

As variously exemplified in Figs. 1a-2, an exemplary embodiment of instant invention can track objects in image data by estimating the position of the moving object. A target tracker identifies the position of an object in a first frame of image data. A data base is maintained to store the positional value of the object in the first frame and any succeeding frames. Stabilization values of the object are also stored in a separate data base for the first frame of data and any succeeding frames. The stabilization values represent the amount of movement in the background portion of an image between successive frames. The target tracker determines whether the object is undetected in a second frame of image data. If the object is undetected the target tracker retrieves the positional values of the object and the stabilization values

of the object from their respective databases. The movement of the object is determined to estimate its new position in the second frame of image data by using at least a velocity and acceleration value of the object and a time between the frames of image data. The difference values are then calculated between the frames for each of the positional values and the stabilization values. The stabilization difference values are then subtracted from the positional difference value for each frame to determine the true movement of the object.

The foregoing features are broadly encompassed by independent claims 1, 16 and 31. Each of claims 1, 16, and 31 recite, among other elements, subtracting stabilization difference values from positional difference values for each frame's image data to generate stabilized positional difference values.

The *Lo* patent discloses an apparatus and method for tracking a target. This target tracking system 5 includes both a correlation tracker 30 and an object tracker 40. The target tracking system transforms an image into a region 212 having a reference image 214, a track gate 216, and cross-hairs 218. The reference image 214, the track gate 216 and cross-hairs 218 are also defined in subsequent images of the object and are used to determine the motion or changes between scenes or images. The Examiner acknowledges that the *Lo* patent fails to disclose or suggest at least subtracting stabilization difference values from positional difference values for each frame of image that it generates stabilize positional difference values, as recited in claim 1. The Examiner relies on the *Hanna* patent to allegedly remedy this deficiency.

The *Hanna* patent is directed to the process of replacing a first target pattern in an image with a second target pattern. The system uses the position of a

landmark pattern that was detected in a previous image to infer the approximate positions of other landmark patterns in the previous image. The system then detects in the current image, the landmark pattern that was nearest the target pattern in the previous image, and that was sufficiently far from the border of the previous image. As a result, when a detected landmark pattern is close to leaving the field of view of the background scene, the system elects to detect another landmark pattern that is further from the image border. Because switching between different landmark patterns occluded in an image causes jitter in an image display, the *Hanna* patent discloses that error corrections are added to the image values so that the inferred location of one landmark pattern becomes identical to the inferred location of another landmark pattern, despite the fact that one of the landmark patterns may be occluded.

The *Hanna* patent, however, does not teach a step of subtracting stabilization difference values from positional difference values, as recited in claims 1, 16, and 31. As discussed above, the stabilization values as recited in the claims represent the amount of movement in the background portion of an image between successive frames of an image. In contrast, the *Hanna* patent discloses that landmark patterns in an image are used to approximate the location of a target based upon the occlusion of another landmark pattern these background images. Stated differently, the *Hanna* patent discloses tracking a target based not on the occlusion of the target itself, but rather on the occlusion of an element in the background of the image. The error value added to the image represents the difference between the location of the target pattern from the non-occluded landmark pattern and the occluded landmark pattern. See col. 6, lines 5-20. Neither the *Hanna* patent nor the *Lo* patent provide

any evidence that this type of error calculation is applicable to tracking an occluded target. For this reason, Applicant challenges whether the *Lo* patent and the *Hanna* patent are combinable. On the other hand, even if these references are deemed combinable, which Applicant believes they are not, Applicant submits that any suggestion to combine the references can only be improperly derived from Applicant's disclosure through hindsight reasoning. For at least this reason, the *Hanna* patent fails to remedy the deficiencies of the *Lo* patent.

In summary, the *Lo* patent and the *Hanna* patent, either singularly or combined, fail to disclose or suggest a step of subtracting stabilization difference values from positional difference values, as recited in claims 1, 6, and 31. For at least this reason, Applicants submit that a *prima facie* case of obviousness has not been established.

To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. *In Re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Moreover, obviousness "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hospital Systems v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). For at least the above reasons, Applicant respectfully request that the rejection of independent claims 1, 16, and 31 and their various corresponding depending claims, under 35 USC §103, be withdrawn and these claims be allowed.

In numbered paragraph 6 on page 7 of the Office Action, claims 11-15, 26-30, and 41-45 are rejected under 35 U.S.C. §103(a) as unpatentable over *Lo* in view of

Hanna and further in view of *Brown* (NPL document). Applicants respectfully traverse this rejection.

Claims 11-15 depend from claim 1, claims 26-30 dependent from claim 16, and claims 41-45 depend from claim 31. By virtue of this dependency, Applicant submits that claims 11-15, 26-30, and 41-45 are allowable for at least the same reasons given above with regard to their respective base claims. In addition, Applicant submits that these claims are further distinguishable over the *Lo* patent, the *Hanna* patent, and the *Browne* reference by the additional elements recited therein. Still further, the *Browne* reference fails to disclose or suggest at least the step of subtracting stabilization difference values from positional difference values, as recited in independent claims 1, 16, and 31. Thus, the *Browne* reference fails to remedy the deficiencies of the *Lo* patent and the *Hanna* patent. Accordingly, Applicant respectfully request that the rejection of claims 11-15, 26-30, and 41-45 under 35 U.S.C. §103 be withdrawn and these claims be allowed.

By the foregoing amendment and remarks, Applicant has addressed all outstanding objections raised in the non-final Office Action dated April 27, 2006. For at least this reason, Applicant respectfully submits that the instant application is in condition for allowance and respectfully request the issuance of a Notice of Allowance. In the event the Examiner believes that the claims may be placed in even better form, Applicant invites the Examiner to contact its representative at the number provided below.

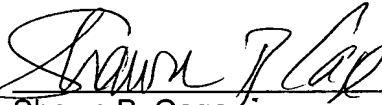
Respectfully submitted,

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7/27/06

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